

REMARKS

I. Introduction

Claims 9 to 11 and 13 to 15 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 9 to 11 and 13 to 15 Under 35 U.S.C. § 112, ¶ 2

Regarding the rejection of claims 9 to 11 and 13 to 15 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite, although Applicants may not agree with the merits of the rejection, to facilitate matters, claim 9 has been amended, inter alia, to recite that a method for coating a substrate includes one of (a) external currentless and (b) electrolytic deposition of at least one of (a) Ni, (b) Co and (c) Pt in a deposition bath in which metallic particles including at least one of (a) Mg, (b) Ti and (c) Zn, and not including Cr, are suspended, the metallic particles becoming occluded in the coating. In addition, claims 10, 11, 13 and 14 have been amended to conform with the changes made to claim 9. Support for these amendments may be found, for example, on page 5, lines 22 to 30 of the Specification. Accordingly, it is respectfully submitted that claim 9 and its dependent claims 10, 11 and 13 to 15 are sufficiently definite for at least these reasons.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

III. Rejection of Claims 9, 13 and 14 Under 35 U.S.C. § 102(b)

Claims 9, 13 and 14 were rejected under 35 U.S.C. § 102(b) as anticipated by German Application Publication No. 37 16 935 ("Thoma"). It is respectfully submitted that Thoma does not anticipate these claims for at least the following reasons.

Claim 9 relates to a method for coating a substrate, including: one of (a) external currentless and (b) electrolytic deposition of at least one of (a) Ni, (b) Co and (c) Pt in a deposition bath in which metallic particles including at least one of (a) Mg, (b) Ti and (c) Zn, and not including Cr, are suspended, the metallic particles becoming occluded in the coating; and heat treating the coated substrate. The

deposition bath includes suspended particles consisting of silicon, the particles consisting of silicon becoming occluded in the coating.

Although Applicants may not agree with the merits of the rejection, to facilitate matters, claim 9 has been amended to recite, in relevant part, that **the metallic particles include at least one of substantially elemental (a) Mg, (b) Ti and (c) Zn**, and that **the deposition bath includes suspended particles consisting of silicon, the particles consisting of silicon becoming occluded in the coating**. Support for these amendments may be found, for example, on page 5, lines 22 to 30 and page 8, lines 8 to 10 and 16 to 18 of the Specification.

Regarding Thoma, as an initial matter, the machine-generated translation is replete with grammatical errors and untranslated text and is of questionable accuracy. Indeed, the heading of the machine-generated translation effectively concedes that its accuracy is questionable (“This translation . . . is intended only to make the technical content of the original document clear in the target language” and that “[t]his service is **not** a replacement for professional translation services” (emphasis added)). A literal and accurate English-language translation of Thoma is respectfully requested, as required under M.P.E.P. § 706.02(II), which states that “[i]f the document is in a language other than English and the examiner seeks to rely on that document, a translation **must** be obtained so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection” (emphasis added).

Notwithstanding the foregoing, and to the extent that that machine-generated translation of Thoma is understandable, it is respectfully submitted that Thoma does disclose, or even suggest, that metallic particles suspended in a deposition bath include at least one of substantially elemental Mg, Ti and Zn. As indicated in column 2, lines 21 to 32, only titanium silicide (TiSi₂) powder, and not substantially elemental Mg, Ti or Zn, is suspended in the electrolyte solution of Thoma. Thus, Thoma also does not disclose or suggest that a deposition bath includes suspended particles consisting of silicon, and that the particles consisting of silicon become occluded in a coating. Accordingly, it is respectfully submitted that Thoma does not anticipate claim 9 for at least these reasons.

As for claims 13 and 14, which depend from claim 9 and therefore include all of the features of claim 9, it is respectfully submitted that Thoma does not anticipate these dependent claims for at least the reasons set forth above.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

IV. Rejection of Claim 15 Under 35 U.S.C. § 103(a)

Claim 15 was rejected under 35 U.S.C. § 103(a) as unpatentable over Thoma. It is respectfully submitted that Thoma does not render claim 15 unpatentable for at least the following reasons.

Claim 15 depends from claim 9 and therefore includes all of the features of claim 9. As set forth above, Thoma does not disclose, or even suggest all of the features of claim 9. Accordingly, it is respectfully submitted that Thoma does not render unpatentable claim 15, which depends from claim 9, for at least the reasons more fully set forth above.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

V. Rejection of Claims 10 and 11 Under 35 U.S.C. § 103(a)

Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Thoma and U.S. Patent No. 4,895,625 ("Thoma et al."). It is respectfully submitted that the combination of Thoma and Thoma et al. does not render these claims unpatentable for at least the following reasons.

Claims 10 and 11 depend from claim 9 and therefore include all of the features of claim 9. As set forth above, Thoma does not disclose, or even suggest, all of the features included in claim 9. Thoma et al. does not cure the critical deficiencies noted above. For example, Thoma et al. describes a method for producing a galvanically deposited protection layer against hot gas corrosion, where a substrate is coated in an electrolyte bath containing cobalt and/or nickel. In addition, the electrolyte includes suspended chromium and/or aluminum containing metal alloy powders such as CrAlHf, CrAlYHf, CrAlTa, CrAlYT, CrNiAl, CrCoAl, CrAlSi, CrAl or MoCrSi. Accordingly, it is respectfully submitted that the combination of Thoma and Thoma et al. does not render unpatentable claims 10 and 11, which depend from claim 9.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

VI. Rejection of Claims 9, 13, 14 and 15 Under 35 U.S.C. § 103(a)

Claims 9, 13, 14 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Thoma, U.S. Patent No. 4,627,896 ("Nazmy et al."), and U.S. Patent No. 5,650,235 ("McMordie et al."). It is respectfully submitted that the combination of Thoma, Nazmy et al., and McMordie et al. does not render these claims unpatentable for at least the following reasons.

The combination of Thoma, Nazmy et al., and McMordie et al. does not disclose, or even suggest, the features of claim 9 that particles consisting of silicon, which are suspended in an electrolytic deposition bath, become occluded, along with metallic particles of at least one of Mg, Ti and Zn, in an electrolytically deposited coating of at least one of Ni, Co and Pt. Thoma describes a method for producing a protective layer on a turbine blade made of a nickel-based, iron-based or cobalt-based superalloy. The method steps include suspending a TiSi_2 powder in an electrolyte containing a nickel or cobalt salt, depositing a nickel or cobalt layer with embedded TiS_2 on the turbine blade, and heat-treating the turbine blade. Nazmy et al. also relates to producing a protective layer on a turbine blade made of a nickel-based superalloy. In the method of Nazmy et al. (see column 4, lines 27 to 57), a chromium layer is initially electrolytically deposited on the superalloy substrate. Subsequently, the substrate is placed in an electrolytic bath containing nickel salts and suspended SiC powder, and a nickel layer with embedded SiC is deposited on the chromium layer. The substrate is then heat-treated. However, neither Thoma nor Nazmy et al. describes depositing an electrolytic layer having metallic particles and particles consisting of silicon embedded in it.

McMordie et al., in turn, describes a method in which a platinum layer is deposited on a nickel-based alloy substrate, a slurry of aluminum powder and silicon powder or an aluminum-silicon alloy powder is applied to the substrate and the substrate is heat-treated. McMordie et al. also indicates that other metal powder components, such as Cr, Ti, Ta and B may be added to the slurry (see column 7, lines 57 to 58), and that, as an alternative, the metal powders may be electrophoretically deposited from a suspension (see column 8, lines 49 to 51). However, McMordie et al. does not provide for the silicon powder to be embedded, along with other metallic particles, in an electrolytically deposited coating, but simply

applies the silicon powder and other metal powder(s) **to the previously deposited platinum layer** as a slurry (or electrophoretically) and heat-treats the substrate.

Furthermore, the Office Action contends that it would have been obvious to include the silicon powder of McMordie et al. in the electrolyte bath of Thoma because of the allegedly desirable, resulting increase in the amount of silicon in the Thoma coating, and because McMordie allegedly shows that powder consisting of silicon may be co-deposited from an electroplating bath. However, McMordie et al. nowhere shows that silicon powder may be co-deposited from an electroplating bath. This is only shown in the Specification of the present application. Furthermore, Nazmy et al. **teaches away** from depositing large amounts of silicon and/or elemental silicon on a layer:

However, SiO₂ -forming layers have in spite of this scarcely been used up to the present point in time since **the highly siliconised protective layers applied and the boundary zones exhibit unfavourable mechanical properties**. As a result of their brittleness they do not adequately adhere to the base body, crack open or peel off. (column 1, lines 36 to 41; emphasis added);

and

The advantage of the new corrosion-protection layer consists in the fact that, despite the high Si content, it does not have the usual brittleness and does not peel off from the base body 1 in operation. In addition, **a rapid diffusion of silicon into the base body 1 is prevented. The silicon migrates slowly from the discretely embedded SiC particles into the matrix and constantly forms SiO₂-containing surface layers along the surface. Since this subsequent dispensation extends over a fairly long time interval, a long service life and high effectiveness of the corrosion-protection layer may be expected**. (column 5, lines 55 to 65; emphasis added).

Accordingly, it is respectfully submitted that the combination of Thoma, Nazmy et al., and McMordie et al. does not render claim 9 unpatentable for at least the above reasons.

As for claims 13 to 15, which depend from claim 9 and therefore include all of the features of claim 9, it is respectfully submitted that the combination of Thoma, Nazmy et al. and McMordie et al. does not render these dependent claims unpatentable for at least the reasons set forth above.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

VII. Rejection of Claims 10 and 11 Under 35 U.S.C. § 103(a)

Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Thoma, Nazmy et al., McMordie et al. and Thoma et al. It is respectfully submitted that the combination of Thoma, Nazmy et al., McMordie et al. and Thoma et al. does not render these claims unpatentable for at least the following reasons.

Claims 10 and 11 depend from claim 9 and therefore include all of the features of claim 9. As set forth above, the combination of Thoma, Nazmy et al., and McMordie et al. does not disclose, or even suggest, all of the features included in claim 9, from which claims 10 and 11 depend. Thoma et al. does not cure the deficiencies of Thoma, Nazmy et al. and McMordie et al. Accordingly, it is respectfully submitted that the combination of Thoma, Nazmy et al., McMordie et al. and Thoma et al. does not render unpatentable claims 10 and 11, which depend from claim 9.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

VIII. Conclusion

In light of the foregoing, Applicants respectfully submit that all pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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